CHAPTER 1

ANALYSIS OF IMPACTS OF THE PROPOSED NORTHERN HIGHLAND-AMERICAN LEGION STATE FOREST PLAN

This document provides an analysis of the proposed master plan's projected impacts and their significance. The impact analysis primarily focuses on negative and positive impacts of new proposed actions and the changes or shifts from current management and conditions. Unless stated otherwise, the analysis assumes the plan is fully implemented. However, it is recognized that the level and rate the proposed plan is carried out will depend on future funding and staffing levels, which are determined by processes outside of the plan.

This chapter is organized by the primary elements being impacted:

- Impacts to Physical and Biological Resources
- Impacts to Recreational Resources
- Impacts to Cultural Resources
- Impacts to Resources of Tribal Interest
- Socio-Economic Impacts
- Impacts of Boundary Expansion
- Cumulative Effects, Risk, and Precedent

IMPACTS TO PHYSICAL AND BIOLOGICAL RESOURCES

SOILS

Impacts from Construction and Use of Recreational Facilities

Some soil loss would likely occur during campground and road construction; however, it would be minimized by required erosion controls. Under the plan, the new trails would be constructed using construction standards designed to minimize soil erosion. New trails would also be routed on existing logging roads whenever possible, which would reduce impacts by minimizing soil and vegetation disturbance. Any soil impacts from construction that would occur would likely be small, of short duration and localized.

The potential for significant long-term soil erosion from use of the new trails would be minimized by the use of DNR trail design standards which require trail siting and water management actions to reduce impacts. Currently, mountain bike use is causing significant soil loss on the Escanaba and Raven hiking trails, as these trails are not designed for bike use. The proposed closure of these trails to bikes and the construction of a new trail designed specifically for mountain bikes would reduce soil impacts.

Soil Impacts from Forest Management

The proposed forest management activities would not generate significant long-term, cumulative impacts to the soils on the NH-AL. This low impact potential is due to two factors. First, is the relatively low percentage of the forest land that is disturbed by management activities at any given time. Three percent or less of the forest would be disturbed in any year by timber harvesting and other management activities. (Under current management about 1-1.5 percent of the forest is harvested per year.) Second, the predominantly sandy soils (95 percent of the forest soils are sandy) have a fast water infiltration rate and a very low run-off rate. On the few "heavier" sandy loam and silty loam soil areas on the NH-AL (e.g. the Winegar Moraine) the potential for soil erosion from forest management activities is slightly higher, particularly on steeper slopes. However, additional precautions to control erosion impacts are designed into timber sale contracts and significant new recreational facility development is not proposed for these areas.

Overall, the largest cause of soil erosion and water pollution from forest management activities is poorly located and constructed forest roads. Impacts from these would be minimal on the NH-AL due to the required use of Best Management Practices for Water Quality (BMP)(WDNR 1995). BMPs set strict standards for road siting and construction, water crossings, skid trails, and logging landings.

Impacts to Forest Productivity: Whole-tree harvesting has the potential to reduce long-term forest productivity. In a whole-tree harvest the whole tree is removed, while other harvests typically leave small branches, twigs, and leaves to decompose on-site. A recent study on long term soil productivity found that whole tree harvesting of aspen on loamy and clay soils had no negative effects on 5-year growth and productivity; but whole tree harvesting of aspen on sandy soils, such as found on the NH-AL, reduced 5-year aspen growth and productivity. (WDNR Silviculture and Forest Aesthetics Handbook: Aspen Chapter, Stone et al. 1999, Stone and Elioff 1998, Stone 2001) Another study found that whole tree harvesting had no significant effect on soil nutrition levels 5 years after harvesting (Alban and Perala 1990). However, this study used sandy loam soils rather than sandy or loamy sand soils.

Currently, some whole-tree harvests occur on the NH-AL and would likely continue at a similar level. The percent of whole tree harvests on the NH-AL is projected to be small compared to the percent of harvests that retain slash on site. The proposed management is expected to have minimal impacts on the productivity of the NH-AL, although whole tree harvesting of aspen on sandy soils may lead to a decrease in long term soil productivity over time on some sites.

GEOLOGICAL RESOURCES

While the draft plan continues to allow the extraction of sand and gravel for state and other governmental uses when other viable options are not available, the non-metallic mining plan protects significant examples of glacial geological features on the forest, including moraines, eskers, drumlins, outwash heads, and outwash plains. Sand and gravel extraction will not be allowed in selected areas having these important geological features.

AIR QUALITY

The proposed actions would generate slightly increased but overall, insignificant increases in air pollutants. The NH-AL is not in an air quality attainment region. The additional air impact sources would primarily be increased use of combustion engines related to increased timber management activity (up to 4,000 additional acres per year) and increased recreational visitation (estimated at up to 10 percent). There would be some small, additional short-term air impacts from equipment used in construction expanded recreational facilities. The proposed prescribed burning on up to 700 acres every 10-15 years would also generate short-term air impacts.

LAKES, STREAMS, AND WETLANDS

The proposed forest management activities would not have a significant adverse impact on lakes and streams or aquatic

habitats. Management activities such as road building and scarification of timber harvest sites may result in very localized limited, short-term impacts to water quality due to increased run-off during unusual storm events. However, because of the use of the extensive water quality protection measures required for all forest management activities under the Best Management Practices for Water Quality (BMPs) (WDNR 1995) and because of the NH-AL's highly sandy soils the potential for a significant impact on NH-AL waters is small.

Direct impacts to unforested wetlands from land management activities are expected to be positive as the wetlands and the habitats they support would be passively managed and not disturbed. The only active management would be related to the occasional control of exotic, invasive species, which would have little adverse impact and a large positive impact. In a small number of cases, unforested wetlands may be crossed under frozen conditions by timber harvesting equipment. In these cases, there may be minor, localized impacts to vegetation. As discussed under impacts to soils, forest management on the adjacent uplands would not have a significant impact on wetlands due to the safeguards built into the BMP requirements that are followed when conducting timber harvests near wetlands.

In forested wetlands timber harvesting has the potential to slightly increase the mortality of understory plants, negatively impacting rare plants and special concern bird species living there. Over the next fifteen years a small amount (estimated to be less than 300 acres) of forested wetlands with older black spruce or other species could be harvested to regenerate the forest community type. However, over the long-term (100 years) this habitat may gradually be lost if it is not regenerated through some type of disturbance, such as harvesting or fire.

As previously discussed in the Impacts to Soils section, the potential negative impact to waters and wetlands from construction of recreational facilities would not likely be significant. Even though the campground expansions may be near lakes (a minimum 75 foot setback from the lake), increased water run-off during construction would be negligible because of the relatively small and dispersed area affected, the erosion control measures used, and the highly permeable soils.

Also, Camp Lake and Little Rock Lake, lakes used by the University of Wisconsin for long-term research projects, are located in close proximity to the proposed ATV trail development. Camp and Little Rock Lakes are sites of an extensive experimental research project examining the role of dead wood along the shorelines and in shallow waters of lakes on fisheries and food webs. Because the research concerns the subtle changes in the food web, inadvertent ATV use along the shoreline or in the water could impact the research results. Little Rock Lake has also been the site of a long-term and ongoing 20-year study of mercury bio-accumulation in food webs. This is possibly the longest continuous mercury study in the world. Shoreline disturbances, especially those that stir up near-shore sediments, can increase levels of toxic mercury compounds in these lakes. The lake is closed to public access and fishing because of this research. Any increased human activity on the shore area would increase the mercury levels and confound the results of this long-term study. ATV use in the proximity of the lake would increase the potential for human disturbance on Little Rock Lake and negative impacts on the research project. (Pers. com. Dr. Tim Kratz, Center of Limnology, University of Wisconsin.)

UPLAND VEGETATION AND HABITATS

About three quarters of the NH-AL is upland. The forests of the NH-AL are a complex mosaic of many forest community types, age classes, and structures because of varied soil, topography, and the history of previous use and management. These forests are a highly dynamic system. Following the cut-over and fires of the early 1900's pioneer tree species like aspen and white birch, became reestablished with some oak and planted pine. They prepared conditions for white and red pine and northern hardwoods to become reestablished as prominent forest components. Prior to the cut-over in the late 1800's and early 1900's white and red pine was dominant across much of the NH-AL's landscape and aspen was a relatively small component of the forest.

Changes in Composition or Cover Type

Each forest stand is classified and labeled according to its dominant cover type. Most stands, however, are a mixture of various tree species, but the overall composition of various stands having the same cover type label may greatly differ.

Currently the NH-AL forest is dominated by aspen (i.e. aspen is the dominant tree species in 34 percent of the forest stands), with lesser amounts of stands dominated by red pine and white pine, red oak, northern hardwoods, white birch, jack pine, white pine, and hemlock-hardwood. As is shown on Table 1.1, the composition of the forest would likely change very little over the next 50 years. Aspen stands are projected to decline by two percent with a corresponding increase in red/white pine stands, and northern hardwoods would increase by one percent. Overall, the largest change would be a subtle, gradual shift in the composition of mixed forest stands. The predominant change would be a slight increase in red and white pine with a corresponding decline in other species, particularly aspen/birch. Although declining in abundance, they would remain a strong component of mixed forest stands.

Changes in Age Structure (old-growth forest)

Today, the NH-AL's forest is relatively young; there are only a few small stands of older trees. Most stands on the forest were established in the early 1900's. Older age classes are under-represented, compared to what historically was present here. The proposed plan would increase the acreage in older age classes and bring more balance to the forest habitats present.

Under the proposed management , over the next 50 to 100 years the age classes would broaden as selected stands are retained longer, to biological maturity, before harvesting and some areas are passively managed to allow old-growth forest conditions to naturally develop. Red/white pine, northern hardwoods, hemlock-hardwood, and red oak would make up the bulk of the older forest component of the NH-AL. Most of this older forest component would be located in the Native Community and Wild Resource Management Areas, and in scattered, small stands across the forest. The practice of Big Tree Silviculture would also add additional larger and older trees (mostly red and white pine) to the NH-AL forest.

Old-growth forest management is proposed for an estimated 22,290 acres. These are all on upland sites. Of this acreage, 61 percent (13,500 acres) would be actively managed and 39 percent (8,790 acres) would be passively managed. The forest reconnaissance data shows the NH-AL's total upland acreage (state owned land) to be 166,125 acres. Therefore, approximately 13 percent of the NH-AL's upland acreage would be under old-growth management; five percent of the upland acreage would be passively managed.

Table 1.1 Projected Changes in Cover Type Over Next 50 years

Cover type	Current	Projected - 50 yr.	Change
Aspen	34%	32%	- 2%
White birch	5%	5%	n/c
Red/white pine	12%	14%	+2%
Northern hardwood	8%	9%	+1%
Hemlock-hardwood	2%	2%	n/c
Red oak	8%	8%	n/c
Jack pine	3%	3%	n/c
Fir-spruce	1%	1%	n/c
Forested wetlands	9%	9%	n/c
Grass	2%	1%	- 1%
Unforested wetlands	13%	13%	n/c

Note: Unclassified lands make up about three percent of the NH-AL, they were not included.

WILDLIFE

The forest's future composition, discussed above, has a direct relationship on wildlife as the habitat that is present determines which species thrive and which will not. Overall, the proposed plan would maintain existing habitats while increasing under-represented habitats, primarily older forest and old-growth forest habitats.

Habitat for deer, ruffed grouse and other wildlife species that favor aspen, birch, and oak would remain abundant on the NH-AL because these forest types would remain a strong component of the NH-AL's cover type. However their habitat would slightly decline over the next 50 years as the forest continues its shift to increased levels of red and white pine, northern hardwoods, and in some areas, old growth forest. The existing ruffed grouse demonstration areas (the 1,900 acre Sherman Lake Area and the 3,500 acre Stone Lake Area) would continue to be managed for an aspen dominated forest with a variety of age classes and patch sizes.

Forest game species, which primarily are "forest edge" species, benefit from openings in heavily forested areas like the NH-AL. A common management tool to benefit forest game species is to maintain small openings (frost pockets and old home sites) in European grasses and native bracken grassland. Currently about one percent of the NH-AL is maintained grassland forest openings, and an additional one percent of lands is classified as grasslands but are not actively maintained. Nearly all being are one half to two acres. Under the plan the current management level would continue with about one percent of the forest being maintained as grassy openings.

While no species on the NH-AL are old-growth obligates, several species find old-growth conditions optimum and would benefit from mature pine, hemlock, northern hardwood, and black spruce forests. These species, including some forest warblers and flycatchers, would have a stable and slowly increasing habitat over the long-term. Bird species that rely on pine forests would see a gradual increase in habitat over time. These birds include the evening grosbeak, pine siskin, red crossbill, and pine warbler. (Hoffman pers. comm. 2003; WDNR Preferred Alternative; WDNR 2003) Many of these birds have nomadic populations on the NH-AL. Additionally, porcupine and American marten would likely benefit from increasing mixed pine forest habitat.

As the land management plan would continue to protect the quality of the NH-AL's waters and riparian habitat the wildlife species that rely on lakes, streams, and wetlands (including eagles, loons, fish, aquatic invertebrates, ducks, and aquatic/wetland plants) would not be impacted.

The plans recreation management proposals, also, would not cause a significant impact to wildlife or habitat because of the relatively small area affected by the proposed campground

expansion and trail development. An increase in human disturbance at the areas of expanded and new recreational development and use would negatively impact wildlife, especially nesting birds.

Endangered, Threatened, and Rare Species

On the NH-AL about 75 percent of the rare plants and animals have wetland habitats. Two US Threatened animals, the Bald Eagle and Timber Wolf, are found on the Forest. A list of endangered, threatened, and rare species and their habitats can be found in the Appendix.

The NH-AL is used by 3 known wolf packs (Wydeven and Wiedenhoeft 2002, Wydeven pers. comm. 2003). Wolves would not be impacted by the proposed plan as they are habitat generalists, and also the overall habitat conditions would not change significantly under the proposed management. Wolf habitat is tied to lower density of open roads, higher forest patch size, and lower levels of edge between land cover types. (Mladenoff et al. 1995, Wydeven et al. 2001)

The NH-AL is the core of one of the highest known regional concentrations of bald eagle, osprey, and common loon. The proposed plan would protect and maintain their habitat by protecting lakes, streams, wetlands, and the immediate shoreline vegetation. Bald eagles and osprey rely heavily on nest trees, usually large pines, on the shorelines of lakes, which would be maintained and enhanced.

The limited harvest of forested wetlands would slightly decrease older black spruce and tamarack habitat, which may have a small short-term negative impact on rare species such as yellow bellied flycatcher and boreal chickadee; however, over the long-term harvesting would regenerate and maintain this habitat. Cerulean and black-throated blue warblers, which favor interior northern hardwood forest, would see relatively stable habitat conditions under the proposed plan.

Browsing by high populations of white-tailed deer may impact populations of rare plants such as showy lady's slipper. (Epstein et al. 1999, Martin 1995). The current high populations of white-tailed deer on the NH-AL are expected to remain steady for many years.

There is a very low probability that the proposed developments would have a significant adverse impact on endangered and threatened species. All new recreation developments would be located away from known endangered and threatened species sites, which primarily are in wetlands, and whenever possible the new or relocated trails would follow previously disturbed sites, old trails or logging roads.

NATIVE COMMUNITIES AND SCARCE ECOLOGICAL RESOURCES

The *Community Restoration and Old Growth Assessment (CROG)* and Biotic Inventory of the NH-AL found a number of the native communities that have regional, statewide or greater significance. Each of these communities and the proposed plans impact on them are presented in the table below:

Many of the most important ecological sites would be designated as State Natural Areas (SNAs). Under the draft plan the NH-AL would have 28 SNAs totaling 23,934 acres. This includes both existing and new SNAs. Thirty six percent (8,615 acres) of the acreage is upland, 54 percent (12,925 acres) is wetlands, with water making up the remaining 10 percent. Approximately 88 percent of the SNA acreage would be passively managed and 12 percent of the SNA acreage would be actively managed. Much of the passively managed area would be old-growth forest management. Ten of the SNAs have active management. Currently there are thirteen scientific natural areas totaling 2,640 acres and six public use natural areas totaling 312 acres on the NH-AL. (Please note that, in part, the old-growth forest acreage overlaps with the passively managed acreage.)

Overall, the largest ecological benefit of the proposed plan would be increased habitat diversity across the forest, providing older forest habitat elements that are highly limited at present. Examples of these elements are extending the age range of stands, increasing species diversity within many stands, and reestablishing old-growth forest characteristics, like snags, den trees and coarse woody debris.

NON-NATIVE INVASIVE SPECIES

Non-native invasive plant species have infested many acres of land on the state forest. They can invade healthy native ecosystems and in some instances radically alter system functions and processes. Other effects include the loss of biological diversity and wildlife habitat, disruption of nutrient cycles and the alteration of soil properties. Majority of nonnative plant species were established at homestead site and others are still being introduced via landscaping and recreation. The spread and introduction of non-native species is also being caused by recreational vehicles, ATVs, hiking boots, and other recreational equipment. Recreational equipment such as motor boats are also the likely spread of aquatic species like Eurasian water milfoil found in many lakes within the state forest. It can be transported from boats and trailers to other lakes in the area.

Some of the species that are causing a variety of impacts to terrestrial and aquatic ecosystems that impact the recreation and forest resource on the state forest are as follows: Asian honeysuckle, buckthorns, Japanese barberry, spotted knap-

Table 1.2 Native Community or Scarce Ecological Resources and Impacts to the Plan

NATIVE COMMUNITY OR SCARCE ECOLOGICAL RESOURCE	IMPACTS OF THE PLAN
High concentration of high-quality kettle lakes, many with rare plants and invertebrates, and abundant, biologically diverse wetlands containing a large number of rare species.	No significant adverse impacts to these habitats and species would occur. The plan continues the current high level of protection for lakes, streams, and wetlands on the forest.
Best opportunity in the region to restore large acreage of red and white pine dominated dry and dry-mesic forests, with some areas of old forest communities.	Over time this restoration would occur under the plan. Red and white pine would be emphasized on suitable sites across much of the NH-AL. Old-growth red/white pine management would be focused on the 3,800 acre Red/White Pine Native Community Management Area and the 13,000 acre Mixed Forest Native Community Management Area. Old growth pine stands would occur on other sites in other management areas as well, such as the Manitowish River Wild Resources Area and the Trout Lake Special Management Area.
Opportunity to manage for and restore small areas of northern hardwoods and hemlock, particularly in an old growth condition to contribute to biodiversity	Under the plan more than 10,000 acres would be managed for old-growth northern hardwoods and hemlock. Primarily the sites are in the Lake Laura Loamy Hills Native Community Management Area and the Hemlock/Northern Hardwood Native Community Management Area. Additional acreage is also located in small, scattered sites across the forest within other management areas.
Unique habitats - rare and uncommon rich fens and wild rice marshes	These would be protected. The fens are in proposed State Natural Areas, and the wild rice marshes are in non-managed areas.
Opportunities to restore Jack pine and tamarack	There would be little change for these species. Jack pine would be maintained at current levels on actively managed sites, with a small increase planned on the Johnson Lake Barrens. Small merchantable acreages of Tamarack would be regenerated.

weed, Japanese knotweed, Eurasian milfoil, curly pondweed, reed canary grass, phragmites, and purple loosestrife to name a few. The aquatic plant species have readily out-competed native vegetation and significantly impact the fishery on some lakes already. The terrestrial plant species have been documented on the Forest are significantly impacting forest regeneration in some areas.

There are several ways that the nonnative, invasive species issue is being addressed by in the draft plan and by other initiatives. There has been an on-going educational effort by many natural resource organizations and groups (WDNR, Lake Associations, counties etc). This occurs both on the forest and state-wide. The draft plan calls for conducting inventory and monitoring efforts as well as control efforts through a variety of methods such as bio-control beetles, chemical treatment, and manual removal. Like other management activities, future success will depend to a large degree on the level of funding and staffing applied to the control effort.

IMPACTS TO RECREATIONAL RESOURCES

FOREST MANAGEMENT IMPACTS

General forest management activities would have little negative impact on developed recreational facilities and recreational activities, including boating, swimming, and camping. On average, three percent or less of the forest would see any forest management activities during any year. Only a portion would be timber harvests. All forest management near developed recreational trails, campgrounds, lakes, and other facilities are routinely adjusted to retain the aesthetic quality of these sites and to time management activities to avoid conflicts with primary recreational uses whenever possible. Periodic thinning of timber in intensive use areas would provide positive benefits. Maintaining the vigor and health of trees, reduces hazard conditions, promotes larger trees, and creates open canopy conditions to allow a well developed shrub layer that provide desirable screening between campsites.

HUNTING, TRAPPING, AND WILDLIFE VIEWING

Hunting, trapping, and wildlife viewing opportunities are abundant and would remain abundant under the plan on the NH-AL given the large land base and diverse forest types.

The ruffed grouse is the most important upland game bird in northern Wisconsin. Ruffed grouse and other forest game such as woodcock, white-tailed deer, black bear, fox, coyote, snowshoe hare, and bobcat do well in early successional forests especially those forests dominated by aspen. The proposed Master Plan calls for maintaining most of the aspen forests on the NH-AL during the next 30 years. Aspen stands would be managed in a wide variety of age and size classes. Most aspen stands on the NH-AL would be managed for a diverse mixture of aspens, oaks, pines, birches, and red maple. This mixture would maintain ruffed grouse habitat while enhancing overall wildlife diversity. Additionally, two special ruffed grouse management areas (Stone Lake and Sherman Lake Management Areas) would be managed with small, scattered clearcuts to maximize ruffed grouse habitat.

Deer populations currently are high within the NH-AL, even with small reductions in aspen deer habitat would remain relatively constant and the plan would have little affect on deer numbers.

Opportunities for forest visitors to see eagles, ospreys, loons and other popular species would remain undiminished under the plan. Over time the management would increase habitat diversity on the forest (particularly older growth pine and northern hardwoods) which would expand the range of wildlife watching opportunities, particularly for birds, including many rare birds.

ACCESS FOR HUNTING, TRAPPING, AND WILDLIFE VIEWING

Under the plan, access (both motorized and non-motorized) for hunting, trapping, wildlife viewing and other recreational uses would remain generally unchanged from current conditions. The existing miles of roads open for motor vehicle use forest-wide would generally remain unchanged, although specific roads may open and close over time due to timber harvesting activities.

The plan would make some shifts in the location of designated non-motor areas on the Forest. With the exception of the Indian Creek Wild Area, the designated non-motor acreage would remain essentially unchanged with a net increase of about 900 acres or four percent in area. These changes reflect the proposed plan's redrawing of the Frank Lake and Partridge/Nixon Wild Area boundaries (to be called semi-remote areas) plus the addition of the Bittersweet Lakes non-motor area. See the section on Impacts to Wild Resource Recreation for more discussion on non-motor areas. Even though the proposed plan would not continue a non-motor use designation on the currently designated Indian Creek Wild Area, because the area is mostly bog it would continue to be primarily only non-motor accessible.

CAMPING AND DAY USE FACILITIES

Under the plan all types of camping opportunities on the forest would be expanded. As shown on Table 1.3, camping would increase by a total of 236 family campsites. The group camping capacity would double - going from 100 to 150 camper capacity. Remote camping opportunities (canoe, remote-reservable, and backpack) would increase by 27-30 sites. All NH-AL campgrounds, including the modern, would continue to be non-electric.

RECREATIONAL TRAILS

Both designated non-motorized and motorized trails would expand under the plan.

Hiking opportunities would increase by 28-34 miles, which includes the new addition of a backpack trail with primitive campsites. There would also be a net gain of 8.5-13.5 miles of mountain bike trail. The current abundant opportunities to hike, bike, and ride horses on non-designated trails across the forest would continue.

While some sections of snowmobile trail would be relocated under the plan, the Forest's total snowmobile trail miles would remain generally unchanged.

Table 1.3 Changes in Camping and Day Use Opportunities

	Current Condition	Draft Master Plan	Net Change in Capacity
Rustic campgrounds	14 (518 sites)	13 (594 sites)	+ 76 campsites
Modern campgrounds	4 (352 sites)	5 (512 sites)	+ 160 campsites
Group campgrounds	2 (100 campers)	3 (150 campers)	+ 50 campers
Canoe sites	74 sites	84 sites	+ 10 campsites
Remote reservable sites	12 sites	22 sites	+10 campsites
Backpack sites	0	+7-10 sites	+ 7-10 campsites
Day Use Areas	8	9	1 day use area

Specific changes in designated recreational trails are summarized below on Table 1.4.

BOATING AND CANOEING ACCESS

Forest-wide, boating and canoeing opportunities would remain largely unchanged. Only one new boat access site, Carrol Lake, would be built. Under the plan motor use restrictions would change on 25 lakes. Generally, the changes in lake designations recognize the existing use patterns and bring the lake designation in line with the established type of use. Only a few of the forest's recreational users would see a change. Twelve lakes would go from allowing access for all motors to non-motor, 12 lakes would go from all motors to electric only, and one lake that currently is electric motor only would become non-motorized. While there currently are no motor restrictions on all but one of these lakes, the actual level of motor use is low because the lakes are small or access is difficult. Therefore, the actual level of change in use would be minimal. The specific lakes where the use changes would occur are detailed below on Table 1.5. Some changes are due to recent code changes that restrict designated wild lakes to only non-motor use.

FISHING

Fishing opportunities, including lake and stream access would generally remain unchanged under the plan. See the Boating and Canoeing Access section for lake-specific changes for boat use.

EDUCATION AND INTERPRETATION OPPORTUNITIES

The proposed Forestry Awareness Center and its associated programs would substantially increase education and interpretation opportunities for NH-AL visitors. The siting of a Forestry Awareness and Education Center on the NH-AL would be the most significant new addition to the education/interpretation program. This facility would bring a variety of greatly expanded year-round educational and interpretive opportunities. All the existing education and interpretation facilities and programs would be maintained with a number of small improvements or expansions.

IMPACTS TO SCENIC RESOURCES

Surveys and comments from Forest visitors show the most valued scenic resources are the lakes and lake shores, the numerous rivers and streams, and the natural appearing forest. Development and forest management activities have a potential to detract from or enhance scenic resources.

The proposed plan would continue the protection of the Forest's scenic waters. Shorelines around designated wild and wilderness lakes would be passively managed. The shore areas around other lakes would be managed with the maintenance of scenic qualities a high priority. BMP (Best Management Practices for Water Quality) management considerations are required when doing forest management within 100 feet of the ordinary high-water mark on shorelines. While these are designed primarily for water quality protection they also benefit shoreline aesthetics through the promotion of long-lived tree species, and the development of trees 12 inches in diameter and larger in the shore zone. Application of the Department's Big Tree Silviculture Policy would also contribute to the continuation and enhancement of larger

Table 1.4 Changes in Designated Trail Opportunities

	Current Condition	Proposed Change
Snowmobile	Over 400 mi.	No change
Biking - Mountain	4 trails, 39 mi.	Add 1 new trail (Vanercook) 20-25 mi. Close 2 trails (Escanaba, Raven) 11.5 mi.
Biking - paved trail	Boulder Junction trail (run by town)	Add 1 new trail (Crystal-Muskie) 1.6 mi.
Hiking/Backpacking	3 hiking trails, 15.5 mi. No designated backpack trails.	Add 2 new hiking trail (Clear Lake) 5 mi. and Bittersweet Lake 8.4 mi. Add 1 new backpack trail (Jute Lake Flats) 15-20 mi.
Skiing	7 groomed trails, 70 mi. (WDNR, volunteer, land use agreement)	No change
Snowshoeing	Allowed except on ski trails	Add 2 new trails (Clear Lake) 5 miles and (Bittersweet Lake) 8.4 miles

Table 1.5 Lakes with Proposed Changes in Motorized Watercraft Access

Lake Name	Acres	Current Motor Use Allowed	Proposed Motor Restriction
Benedict Lake	26	No restriction	Non-motor
Bittersweet Lake	103	No restriction	Non-motor
Deadman Lake	14	No restriction	Non-motor
Dry Lake	44	No restriction	Non-motor
Du Page Lake	32	No restriction	Non-motor
Little Cloud Lake	10	No restriction	Non-motor
Oberlin Lake	42	No restriction	Non-motor
Prong Lake	31	No restriction *(carry-in access)*	Non-motor
Smith Lake	41	No restriction	Non-motor
Swanson Lake	21	No restriction	Non-motor
Unnamed Lake south of Rainbow Flowage	13	No restriction	Non-motor
Aurora Lake	94	No restriction	Electric
Camp Lake	59	No restriction	Electric
Fox Lake	29	No restrictions *(carry-in access)*	Electric
Gypsy Lake	15	No restriction	Electric
McNaughton Lake	115	No restriction	Electric
Otto Mielke Lake	29	No restriction	Electric
Pauto Lake	18	No restriction	Electric
Scaffold Lake	20	No restriction	Electric
Shannon Lake	35	No restriction	Electric
Turtle Lake	53	No restriction	Electric
Unnamed Lake west of High Lake	15	No restriction	Electric
Wharton Lake	32	No restriction	Electric
Zottle Lake	28	No restriction	Electric
Bass Lake, South	90	No public motor use *(private access)*	No restriction

pines and other longer-lived trees along shorelines as well as other areas across the forest.

Recreational facility development would not have a significant impact upon the scenic quality of the state forest. New facilities would be sited away from the most sensitive scenic sites and the natural character of shorelines would be maintained. Shoreland zoning and department facility design standards require that all structures that are not water dependent (i.e. boat ramps and fishing piers) have a minimum 75 foot setback and that most shoreline vegetation within this zone be retained. The development of one new water access site on Carrol Lake would create a small, localized visual change to that shoreline.

The scenic qualities of the Rustic Road # 60 (a portion of Vials Co. Hwy K) and the main highway corridors within the NH-AL would be maintained and, over the long-term, enhanced by the management proposed in the plan. Scenic values are set as primary management objectives for these areas. Management prescriptions call for an emphasis on maintaining or establishing longer-lived mixed forest species, and minimizing the visual impacts of harvest activities near these roadways. Examples of these special aesthetic management actions include eliminating slash, not allowing long landings near the road, and using special alignments for logging roads to reduce their visibility.

Department foresters are trained in aesthetic management techniques. When planning and implementing timber sales within scenic management zones forest staff use techniques recommended in the Department's Silviculture and Forest Aesthetics Handbook. The handbook is an important resource that helps them limit short-term aesthetic impacts while achieving long-term aesthetic objectives across a wide variety of timber types.

VISUAL CHARACTER OF THE FOREST

Even under the projected increased management activity the change would likely not be apparent to most forest visitors. This would be because 1) most forest management is in areas not frequented by forest visitors, and 2) when management does occur along popular travel-ways or near primary recreation areas the management practices are adjusted to minimize their visibility. Most visual impacts, when they occur, are short-term.

Gradually over the next 25-50 years the forest visual appearance would become more diverse as the tree species diversity and age classes range expands. Changes in the Forest's overall visual character would not be noticeable to most people because it would change so slowly. Red and white pines would become more abundant on the landscape with a greater number of large trees and older trees present. This would be a result of the natural increase in pine in the mixed forest stands and the continued practice of Big Tree Silviculture, whereby trees such as red and white pine, and oak are encouraged to grow to large size for aesthetic benefit. Another affect is that the highly popular white birch would continue to decline as the forest continues to shift to more climax tree species. Over the long-term (50-100 years) old-growth managed areas would take on an "old forest" look of larger trees, older trees, more snags and down woody debris.

IMPACTS TO WILD RESOURCE RECREATION

Wild resource recreation is a remote recreational experience. It includes hiking, skiing, snowshoeing, or canoeing in areas with few signs of human activity. Several areas on the NH-AL are managed to provide this type of recreation. Motorized recreation is not allowed and only the simplest recreational

facilities may be present. Depending on the land use classification of the area, restricted management activities may occur but these management activities are not readily apparent to recreational visitors.

For those persons seeking more remote, solitary recreational experiences in a wild appearing landscape the plan proposes some changes in the areas designated; however, the overall level of opportunity would remain generally unchanged. These changes are detailed below.

Wild Resource and Non-motor Areas

Under the draft plan the former Frank Lake and Partridge Lake Wild Areas (called semi-remote areas in the draft plan) boundaries are shifted to exclude lands near lakes with motorized use, and to include new areas that better fit the non-motorized area objectives. The new semi-remote areas are smaller than the Wild Areas by about 11 percent (2,700 acres). The Indian Creek Wild Area (7,000 acres) would not have a special recreation designation under the plan, as the area is mostly bog and jack pine dominated uplands with rather low recreational use potential. Removing the Wild Area designation would not significantly change the current access or recreational character of the area because management under the plan would continue to protect the wetlands with no new developments. The changes are summarized below in Table 1.6.

Wild lakes, Wilderness Lakes, Public Non-Motor Lakes, and Electric-Motor Lakes

The 900 lakes within the boundaries of the NH-AL provide some of the Forest's most highly valued recreational opportunities. While many of the lakes on the NH-AL provide motor boating opportunities, the lakes described in this section would provide a quiet, more remote experience. As lake development increases across the north, the undeveloped lakes of the NH-AL provide an increasingly rare, and prized recreational opportunity.

The 1982 Master Plan designated 19 wilderness lakes and 41 wild lakes. In addition, some lakes currently have no-motors or have electric-motor only restrictions. In comparison, the Draft Master Plan recommends 6 wilderness lakes, 34 wild lakes, 18 public non-motor lakes and springs, and 24½ electric-motor only lakes.

Since the 1982 NH-AL plan was developed the wild and wilderness lake qualifications have become more restrictive. Therefore, some lakes no longer qualify for their present designation and are assigned an appropriate new designation in the draft plan. The primary change in the criteria is that both electric and gas motors are now prohibited on all wild lakes. These lakes that no longer qualify because of existing motor use would be called scenic lakes and managed with protection of their scenic values as a high priority.

What's the difference between wilderness, wild, electric-motor only, and public non-motor lakes?

Wilderness Lake – a lake that provides a wilderness experience, with no motors (gas or electric) and a ¼ mile buffer without roads, timber harvesting, motorized trails, or other signs of human influence. Very occasional (about once every 5-10 years) use of motors is permitted for monitoring.

Wild Lake – a lake that provides a somewhat remote experience, with no motors (gas or electric) and a 400 ft buffer with no timber harvests. May have limited road access. Very occasional (about once every 5-10 years) use of motors is permitted for monitoring.

Electric-Motor Only – only battery power motors are allowed for public use on these lakes. All motors are permitted for management activities.

Public Non-Motor – a lake that provides a quiet recreation setting, with no use of motors (gas or electric) by the public, but regular motorized use permitted for management. Does not require an undeveloped shoreline.

Table 1.6 Comparison of Changes in Wild Resources Area Opportunities Between the 1982 Plan to the Draft Master Plan

1982 Plan	Draft Plan	Change
Wild Areas* 27,900 acres	Semi-remote Areas* 20,276 acres	- 7,624 acres
Wilderness Area** 6,265 acres	Wild Res. Area; Type I Rec. Setting** 6,265 acres	No change
	Recreation Resources Management Area - Type II Rec. Setting Area*** 2,000 acres	+ 2,000 acres

** The Wild Area designation no longer exists due to recent changes in the Department's land management classification system. The semi-remote area name, a classification unique to the Draft NH-AL plan, provides the same recreational environment that currently exists in the NH-AL's Wild Areas. These areas allow only very limited public motor access.*

*** The Wild Resources Area – Type I Recreational Use Setting classification replaced the Wilderness Area designation in the Department's revised land management classification system.*

**** A Type II Recreational Use Setting is a new landuse designation. It provides a remote or somewhat remote environment that is primarily natural appearing (but may have some management), has little facility development that offers and opportunity for solitude and primitive, non-motorized recreation. It is somewhat more restrictive than what would be allowed in the Semi-remote Areas.*

Changes to Existing Wilderness Lakes: Under the proposed plan six of the 19 designated wilderness lakes retain that designation. Thirteen lakes no longer qualify because of a road within ¼ mile or an established motor use on the lake. These lakes are to be redesignated - 10 would become wild lakes and three would be assigned an electric motor only designation.

Changes to Existing Wild Lake Designations: Many of the 41 currently designated wild lakes would be redesignated to a different classification to comply with new wild lake criteria and to reflect their current use. Under the draft plan the use designation of existing wild lakes which are non-motor would change as follows:

- 6 retain the Wild Lake designation and stay non-motor
- 9 ½ all motors now allowed, would become non-designated lakes to continue that use,
- 6 ½ electric motors currently allowed; would be redesignated as Electric Motor Lakes,
- 8 all motors currently allowed; would be restricted to electric motor only and redesignated as Electric Motor Lakes,
- 11 existing developments within the wild lake zone preclude their continued designation as Wild Lakes. They would be redesignated as Public-Non-Motor Lakes to continue their current non-motor status.

Note: the shorelines of the former wild lakes would have a 400 foot scenic management buffer area, unless they lie within a Native Community Management Area, which would provide similar scenic protection.

Summary of Changes in All Types of Special Lake Use Designations: The opportunities for canoeing or boating on lakes without combustion motorized watercraft would increase under the draft plan. In total, 58 lakes would be non-motor only (Wilderness, Wild, Public Non-motor) and 24.5 lakes would be restricted to electric motor use/non-motor watercraft use. This is a net increase of 25 designated no-motor lakes and 13 electric motor lakes.

An overview of the plan's proposed lake designation changes is provided in Table 1.7 below. Then Table 1.8 compares the specific wild and wilderness lake changes from the 1982 plan to the proposed plan. The wild and wilderness lake locations are displayed on Map 60 in the proposed plan. For a listing of the specific lakes that would have a change in motor use restrictions see Table 1.5.

Table 1.7 Summary of Proposed Special Lake Use Designations

Proposed Designation	Number of Lakes	Comments
Wilderness Lakes	6	All were designated as wilderness lakes in the 1982 plan.
Wild Lakes	33	6 – remain wild lakes, designation is unchanged from last plan, 10 – were wilderness lakes in the 1982 plan, would be designated as wild lakes because they do not meet all wilderness lake criteria 18 – newly designated wild lakes. These lakes previously did not have any type of designation.
Public-Non-Motor Lakes	22	All had some type of motor restriction under the 1982 plan. Eleven were wild lakes.
Electric Motor Lakes	24.5	11.5 – unchanged 13 – all motors were previously allowed

Table 1.8 Wild and Wilderness Lake Designation Changes – A Comparison of Proposed and Current Designations

Proposed Land Management Designation	1982 Plan Use Lake Designation	Name	County	Acres
Wilderness	Wilderness	BRUSH LAKE	IRON	33
Wilderness	Wilderness	CLEAR LAKE	ONEIDA	62
Wilderness	Wilderness	KELLY LAKE	IRON	32
Wilderness	Wilderness	LAKE ALVA	VILAS	23
Wilderness	Wilderness	TOY LAKE	VILAS	70
Wilderness	Wilderness	WOODSON LAKE	IRON	27
Wild	Wilderness	MUD LAKE	IRON	56
Wild	Wilderness	BENEDICT LAKE	VILAS	26
Wild	Wilderness	DEVINE LAKE	VILAS	95
Wild	Wilderness	EAST ELLERSON LAKE	VILAS	136
Wild	Wilderness	FROG LAKE	IRON	42
Wild	Wilderness	HELEN LAKE	ONEIDA	12
Wild	Wilderness	INKPOT LAKE	ONEIDA	14
Wild	Wilderness	JOHNSON LAKE	VILAS	24
Wild	Wilderness	NORWAY PINE LAKE	IRON	30
Wild	Wilderness	SALSICH LAKE	VILAS	48
Wild	Wild	BUG LAKE	VILAS	19
Wild	Wild	HAWK LAKE	ONEIDA	10
Wild	Wild	UNNAMED LAKE east of Luman Lake (38-7-33)	ONEIDA	7
Wild	Wild	MAX LAKE	VILAS	24
Wild	Wild	ISLAND LAKE	ONEIDA	17
Wild	None	3 small unnamed lakes west of Swanson Lake	ONEIDA	9, 5, 4
Wild	None	DU PAGE LAKE	IRON	32
Wild	None	BITTERSWEET LAKE	VILAS	103
Wild	None	LITTLE CLOUD LAKE	VILAS	10
Wild	None	OBERLIN LAKE	VILAS	42
Wild	None	PRONG LAKE	VILAS	31
Wild	None	SMITH LAKE	VILAS	41
Wild	None	SWANSON LAKE	ONEIDA	21
Wild	None	UNNAMED LAKE east of Bittersweet Lake	VILAS	5
Wild	None	UNNAMED LAKE north of Big Lake.	VILAS	10
Wild	None	UNNAMED LAKE south of Rainbow Flowage.	ONEIDA	13
Wild	None	UNNAMED LAKE southeast of White Sand Lake.	VILAS	20
Wild	None	UNNAMED LAKE west of Round Lake	VILAS	15
Scenic Lake	Wilderness	ELOISE LAKE	VILAS	13
Scenic Lake	Wilderness	JEAN LAKE	VILAS	24
Scenic Lake	Wild	BLUEBERRY LAKE	VILAS	12
Scenic Lake	Wild	DEADMAN LAKE	VILAS	14
Scenic Lake	Wild	EMERALD LAKE	VILAS	27
Scenic Lake	Wild	LITTLE BASS LAKE	ONEIDA	47
Scenic Lake	Wild	LITTLE JOHN JR. LAKE	VILAS	25
Scenic Lake	Wild	LITTLE ROCK LAKE	VILAS	36
Scenic Lake	Wild	MAPLE LAKE	VILAS	47
Scenic Lake	Wild	TRILBY LAKE	VILAS	92
Scenic Lake	Wild	UNNAMED LAKE (aka LONG LAKE) 39-7-34	ONEIDA	12
Scenic Lake	Wild	WILDWOOD LAKE	VILAS	16
Scenic Lake	Wild	DOROTHY DUNN LAKE	VILAS	70
Scenic Lake	Wild	FALLISON LAKE	VILAS	53
Scenic Lake	Wild	FOX LAKE	ONEIDA	29
Scenic Lake	Wild	FRANK LAKE	VILAS	141
Scenic Lake	Wild	HEMLOCK LAKE	ONEIDA	39
Scenic Lake	Wild	LONE TREE LAKE	VILAS	121
Scenic Lake	Wild	MCNAUGHTON LAKE	ONEIDA	115
Scenic Lake	Wild	OTTO MIELKE LAKE	VILAS	29
Scenic Lake	Wild	SHANNON LAKE	VILAS	35
Scenic Lake	Wild	TURTLE LAKE	ONEIDA	53

Table 1.8 Wild and Wilderness Lake Designation Changes – A Comparison of Proposed and Current Designations *(continued)*

Proposed Land Management Designation	1982 Plan Use Lake Designation	Name	County	Acres
Scenic Lake	Wild	ZOTTLE LAKE	ONEIDA	28
Scenic Lake	Wild	PARTRIDGE LAKE	VILAS	234
Scenic Lake	None	FIREFLY LAKE	VILAS	27
None	Wilderness	NIXON LAKE	VILAS	110
None	Wild	CAMP LAKE	VILAS	59
None	Wild	DAY LAKE	VILAS	44
None	Wild	DRY LAKE	VILAS	44
None	Wild	PLUNKET LAKE	IRON	48
None	Wild	SCAFFOLD LAKE	VILAS	20
None	Wild	ALLEQUASH LAKE	VILAS	426
None	Wild	BASS LAKE, NORTH	IRON	180
None	Wild	BASS LAKE, SOUTH	IRON	90
None	Wild	ESCANABA LAKE	VILAS	293
None	Wild	MYSTERY LAKE	VILAS	20
None	Wild	NEBISH LAKE	VILAS	98
None	Wild	PALLETTE LAKE	VILAS	173
None	Wild	SPRUCE LAKE	VILAS	15
None	Wild	SWEENEY LAKE	ONEIDA	187

IMPACTS TO CULTURAL RESOURCES

There is a low probability of significant adverse impacts to archaeological and historical resources from either forest management or development of recreational facilities. For all actions (timber harvests and facility developments) Manual Code 1810.1 would continue to be followed. It prescribes a process for screening for potential archaeological and historical sites prior to initiating a wide range of management and development activities. Additional investigation and precautions are taken in areas of known sites.

IMPACTS TO RESOURCES OF TRIBAL INTEREST

A number of resources on the NH-AL are of special interest for the Lac du Flambeau and the other Chippewa Bands, who have treaty rights within the ceded territory. (Please refer to Appendix A for additional information on Chippewa treaty history). Members of the NH-AL master planning team periodically meet with tribal and GLIFWC personnel during the planning process. These consultations with the tribes are conducted on a government-to-government basis as required under the Wisconsin Administrative Code NR 44.04 (7)(c), and continue throughout the master planning process. It is through this process that we can further identify the needs and concerns of tribal members that exercise their off-reservation treaty rights. Many of the concerns expressed include opportunities to hunt and fish, encourage regeneration of paper birch, limiting use of herbicide, control of nonnative, invasive plants and vehicular access.

During the consultation process, WDNR planning members and GLIFWC developed a matrix, (Table 1.9) of resources found on the NH-AL that are valued by tribal members. This team rated each resource with a positive (+), negative (-), or neutral (0). The rating refers to the affect on resources used by tribal members upon implementing the NH-AL state forest master plan preferred alternative. For example, maintaining a closed canopy forest will not encourage berry production thus having a negative rating since tribal members value this resource on the state forest. In the following paragraphs is a written summary of the natural resource matrix. The bullets outline the affect on resources valued by the tribal members. Refer to the matrix table, Table 1.9, for more information.

Various areas on the state forest will be managed for forestry specifically in the aspen, oak, red and white pine, northern hardwood and lowland conifer covertypes.

Managing for white and red pine:

- Favor older trees and less aspen (+).
- Favor deer, bear, and fisher by providing tree regeneration, increase understory and diversity and den trees (+).
- Not favor beaver and bobcat since less aspen in this covertype for food and prey (-).
- More frequent entries will encourage nonnative, invasive plant species (+/-).
- Berries will be less abundant and restricted to small openings (+/-).

Managing for aspen:

- Positive effect for bear, deer, beaver and bobcat (+).
- Berries will be more abundant in early successional areas (+).

- Aspen can be very competitive and out-compete paper birch on some sites (-).
- Less harvest entries, however, more light and disturbance will encourage nonnative, invasive plants (+/-).

Managing for northern hardwood:

- Periodic entries will increase balsam fir for bough harvesting (+).
- Encourage paper and yellow birch retention for diversity and seed source that would benefit bark collection (+).

Managing for paper birch and jack pine:

- Prescribed burning in these covertypes will encourage berry production and tree regeneration of these species (+).
- Prescribe burning may discourage some nonnative, invasive plant species (+). Some nonnative, invasive species may be favored (-).

Focus and Ecological Sites (State Natural Areas, Biotic Inventory areas, Old Growth). Most of these sites will be passively managed:

- Access to these areas may not be maintained limiting access to tribal members(/-).
- Gathering may not be permitted in some of these areas due to occurrence of sensitive species (/-).
- Firewood may be more available (+).
- Prescribed burning may discourage some nonnative, invasive plant species (+). Some nonnative, invasive species may be favored (-).

Most of the impacts of the proposed management on resources of tribal interest would occur over the long-term as the forest matures and its composition shifts. Overall, the largest gain would likely be from the increase in the northern dry-mesic forest and northern mesic forest types. Deer, bear, and berries would remain abundant. Birch bark may stay steady to possibly decrease, depending upon the long-term success at efforts to successfully regenerate birch.

The level of road access across the forest for tribal hunting and gathering would remain generally unchanged; the draft plan commits to maintaining the current level of road access forest-wide. However, the location of open roads would change to some degree. Some roads in the former designated wild areas may be opened while roads within the new areas proposed as non-motor areas would be closed.

SOCIO-ECONOMIC IMPACTS

TIMBER PRODUCTS

Under the proposed plan the acreage available for active forest management and product production would be approximately 2,500 acres less than is available under the current plan. (Because new land acquisitions can not be predicted, this assessment is based solely on current state owned lands within the NH-AL.) Under the current plan there is an estimated 9,900 acres of non-managed (i.e. passively managed) uplands. This includes a wilderness area, wilderness and wild lakes, and most state natural areas. In comparison, under the draft plan there is an estimated 12,400 acres of non-managed (passively managed) uplands.

Table 1.9 Projected Impacts on Specific Resources of Special Tribal Interest

	Pine Mgt	Aspen Mgt	Northern Hardwoods Mgt	Red Oak Mgt	Birch Mgt	Jack Pine Mgt	Hemlock Mgt	Unforested Wetlands Mgt	Forested Wetlands Mgt
Northern dry-mesic forest	"+"	"-/+"	0	0	0	0	0	0	0
Northern mesic forest	0	"-/+"	0	0	0	0	0	0	0
Wetland	0	0	0	0	0	0	0	0	0
Aquatic Features	0	0	0	0	0	0	0	0	0
Deer	"+"	"+"	0	0	0	0	0	0	0
Wild Rice	0	0	0	0	0	0	0	0	0
Ducks and geese	0	0	0	0	0	0	0	0	0
Bear	"+"	"+"	0	0	0	0	0	0	0
Beaver	"-"	"+"	0	0	0	0	0	0	0
Otter	0	0	0	0	0	0	0	0	0
Fisher	"+"	"+/-"	0	0	0	0	0	0	0
Bobcat	"-"	"+/-"	0	0	0	0	0	0	0
Berries	"+/-"	"+"	0	0	"+"	"+"	0	0	0
Firewood	"+"	"+"	0	0	0	0	0	0	0
Balsam fir	"-"	"+"	"0/+"	0	0	0	0	0	0
Birch bark	"+?"	"-"	"+?"	"+?"	"+"	0	"+?"	0	0
Cedar	0	0	0	0	0	0	0	0	0
Exotic species	"+/-"	"+/-"	0	0	"+"	"+"	0	0	0
Access	0	0	0	0	0	0	0	0	0

Symbols indicate the predicted impact: + positive, - negative, 0 no change,

Timber can be sold either by the cord, mainly for pulpwood, or by the board foot for sawtimber. Annually, the NH-AL averages over 40,000 cords and 2 million board feet of timber from 2,500 to 3,000 acres of sales, with receipts of over 1.5 million dollars. If the proposed plan were fully implemented harvest levels would approximately double to 80,000 cords and 4 million board feet of timber annually. However, future increases in production levels are closely tied to increases in forest staffing; therefore, any production increases near-term are uncertain.

Under the plan there would be only a small and slow change in the type of forest products produced. For the near-term the Forest would continue to produce pulp and sawtimber in similar proportions that it does today. As the forest matures over the next 50 to 100 years there would be an increase in larger oak and pine that could be sold as sawtimber.

Timber products from the NH-AL help support primary and secondary wood using industries throughout the region. A small number of local area loggers also derive economic benefit from harvesting timber on the Forest and would see a benefit from increased harvesting. The potential increases in forest product production would not have a significant impact on the regional forest products industry. This is due to the relatively small contribution of the NH-AL to the overall large regional supply of raw product and the broad, elastic nature of the product stream.

NON-TIMBER PRODUCTS

Though much less significant economically than timber harvesting, the gathering and use of non-timber forest products supplements household incomes and supports local economies and cultures. Non-timber forest and wetland resources include fish and game animals, wild rice, firewood, small branches or boughs for furniture, wreaths or other crafts, animal pelts, antlers, berries, mushrooms, nuts, medicinal herbs and bark, and ceremonial plants. The overall availability and accessibility of these products on the NH-AL would not change from current levels under the proposed plan. One product, blue berries, may increase as a result of prescribed fires in barrens and some pine forest areas.

RECREATION AND TOURISM

Recreation impacts to local communities fall into two categories, social impacts from changes in the type and level of use, and the economic impacts from recreational use changes.

Overall, the management actions proposed in the plan would not likely trigger any significant negative social impacts as the proposed actions generally maintain the existing conditions on the NH-AL. However, the proposed campground expansions may have some small, localized effects due to increased vehicle traffic on nearby roadways and increased noise from more campers. The larger campground expansions would be at Upper Gresham Lake and East Star Lake (30 sites each).

The plan would continue and enhance the NH-AL's strong role in supporting the area's tourism economic sector. The primary factors would be; 1) the short-term and long-term maintenance and enhancement of the forest's scenic, undeveloped lake and forest environment, and 2) the modest expansion of recreational facilities, particularly the addition of 236 new campsites.

When built, the expanded recreational facilities are estimated to draw more than 100,000 new visitors annually. The most specific estimates available are for family campers, which are based on current rustic and modern campground occupancy rates. The addition of 236 family campsites would generate an increase of 71,000 camper days on the NH-AL. Other recreational facilities (e.g. expanded trail network, additional group and primitive campsites, and the new Forestry Awareness Center) could easily account for more that 30,000 additional visitor days annually.

A 2002 study titled *State Parks and Their Gateway Communities* conducted by the DNR, Bureau of Parks and Recreation and the University of Wisconsin-Extension shows that in this region the average local area spending per visit/day for a non-local group is $57.46, and $19.12 for local groups. The average group size is 3.5 persons. Assuming 84 percent of the state forest visitors are non-local, (based on data in the Recreation Supply and Demand Assessment DNR March 2001), the direct economic impact on the local economy by visitor spending would be nearly 1.5 million dollars a year. The indirect economic impact would be an additional 2.6 million per year. Additional permanent state forest staff that may be hired would generally reside in the local area and would add additional dollars to the local economy as well.

Economic benefits during construction of the campground expansions and other facilities would also accrue to building trade members and laborers, and suppliers, some of which may be local. No estimate of dollar amounts to the local area is available, as extent of local contractor involvement is not known.

FISCAL EFFECTS - LOCAL GOVERNMENTS

The plan's proposed recreation management would not generate a significant change in demand on local law enforcement or emergency services. Most NH-AL law enforcement issues are handled by NH-AL rangers rather than the local police or the county sheriff. The demand on local emergency medical services may slightly increase as state forest use levels rise in response to recreational facility expansions.

The plan's proposed land management would not generate any significant new demand for local or county law enforcement or emergency services. There are few needs for local services related to forest management and other land management activities. The level of impacts by logging trucks to highways and traffic patterns by logging trucks would not change as logging activity under the plan would remain at or close to current levels.

Local Tax Revenues

The acquisition of additional lands for the NH-AL State Forest would result in steady to slightly increase property tax revenues for local governments. Additionally, the local government's future demand for expanded services (e.g. for schools, law enforcement, fire protection) would be less than if the parcels become subdivided and developed.

Under a statute enacted on January 1, 1992, each time a new property is acquired, the purchase price is set as an equivalent of an assessment, and aids-in-lieu-of-taxes are paid on that basis. Because the purchase price is often higher than the equalized assessed value of the property, the DNR's payment is often slightly higher than the tax paid under the previous owner. As additional properties are acquired for the NH-AL State Forest the effect would continue.

FISCAL EFFECTS – STATE

Land Acquisition Costs

The estimated gross value of all 65,000 acres of land within the proposed boundary expansion area is $162.5 million dollars. This is based on the average land value in the NH-AL area of $2,500 per acre. The Stewardship Fund, which is based on state bonding, would likely be a primary funding source for acquisitions in the near term. Purchases of land within the boundary expansion areas would be only from willing sellers and it would extend over many decades. Not all lands within the expansion area would ever be purchased.

Development Costs

The Department budgets for its capital development needs on a biennial basis, as do all state agencies. The plan calls for the developments to be phased-in over an extended period of time, probably several state budget cycles. The extent that these costs would fall into any particular biennial budget is unknown. The following cost estimates are given in 2004 dollars.

Camping:		
a) Family camping expansions		1,700,000
b) New campground (Carrol)		927,000
c) Group camping (Buffalo Lake)		144,500
d) Canoe/wilderness backpack		170,000
	$ 2,941,500	
Trails:		
a) Mountain bike		254,000
b) Hike, backpack		250,000
	$ 538,000	
Total Projected Development Costs		**$ 3,445,500**

Payments in Lieu of Taxes

When the state purchases privately owned land it is removed from the tax rolls. Although it no longer is on the tax rolls, the Department makes payments in lieu of taxes to offset tax losses. Presently, the state makes a payment in lieu of taxes to each taxation district in an amount equivalent to the property taxes. Under the payments in lieu of tax programs, acquisition of lands for the state does not increase the local taxes.

When privately owned parcels are acquired by the Department of Natural Resources (DNR) any reduction in tax revenues to local governments are offset by the Wisconsin State Law that provides for payments from the DNR. The law requires that the payments fully replace or exceed the property taxes that would have been collected if the land were not acquired by the DNR. For all lands acquired on or after January 1, 1992, the state makes a payment in lieu of taxes to each taxation district (Town, County, School District, etc.) in an amount equivalent to the property taxes. The only difference between this program and private land taxation is the relation to the assessed value. The initial assessment value of Department lands is set at the Department purchase price of the land based on the fair market value. Subsequently this value is adjusted to reflect the change in assessed value in the taxation district. The first year payment is actually based on an adjusted purchase price. All other aspects of the way the DNR pays this aid in lieu of taxes under this program are the same as for a local taxpayer. Under the payments in lieu of taxes program the acquisition of land for the state does not increase local taxes.

Operational Costs

Recreation and Operations Management: It is estimated (Leith. 2004. Personal Communication) that to fully meet the operational needs, excluding forest management) if the proposed plan were fully implemented the annual operating costs of the NH-AL recreation program (staff salary/benefits and support) would increase by $654,000. This cost estimate reflects a staffing increase of nine permanent FTE and 10 seasonal LTEs as itemized below:

Rangers (law enforcement)	- 3
Real Estate	- 1
Facility Repair Workers	- 4
Seasonal LTE	- 10
Fiscal Clerk	- 1

Forest and other Resource Management: The primary effects on operational costs for NH-AL land management program would be from increases in forest management staffing. Currently the NH-AL has five foresters performing active management on approximately 4,000 acres/year. Under the proposed plan the level of forest management activity would nearly double to 7,500 to 8,000 acres per year. Correspondingly, to fully meet the plan's management objectives the number of forester positions on the Forest would need to minimally double to 10 FTE. The fiscal impact would be $245,000 of additional annual operational cost for salaries and support. Active forest management involves activities such as inspecting stands and scheduling management activities, setting up timber sales or other treatments.

The total increased annual operational costs for both the proposed land and recreational management programs are estimated to be $899,000.

STATE FOREST REVENUE

Revenue is generated on the NH-AL by timber sales and recreational use fees. Timber sales between 1997 and 2001 averaged over 1.5 million dollars, providing between 66 and 80 percent of the total NH-AL revenue. (These funds are not directly available for use on the NH-AL. All state forest revenue is deposited into the state forestry account, these funds are appropriated by the state legislature in the biennial budget process.)

Revenue from Timber Products

Estimates of future timber sale revenue are difficult to predict because of variable market forces and harvest levels on the state forest. However, general estimates can be made based on the following assumptions, 1) that the forest is staffed at a level sufficient to implement the plan and, 2) that product values remain at today's level. The product mix (pulp and saw logs) over the next 15-20 years is predicted to remain similar to today. Therefore, if the plan's land management plan is fully implemented the product volume is estimated to approximately double. Assuming current product values, the annual revenue from forest product sales over the next 15-20 years would be approximately 3.0 million annually. However, production rates and revenue are closely tied to staffing levels, and the current forestry staff are working to capacity. If current staffing levels are maintained and not increased (per the assumption above) future forest product revenue will remain at approximately the 1.5 million dollars.

Revenue from Recreation

Recreational revenue on the NH-AL has ranged from $590,000 to $700,000 per year since 1997. Based on current campground occupancy rates adding the proposed 236 new family campsites would generate an estimated $275,000 annually. An additional $25,000 in revenue would be collected annually from other recreational fees, such as trail pass fees, group camp fees, and park stickers.

IMPACTS OF BOUNDARY EXPANSION

The proposed master plan boundary expansion totals approximately 65,000 acres. The expansion would authorize the Department to appraise and purchase land from willing sellers within the boundary expansion area. Acquisition on land within the expansion area would extend over many decades and be only from willing sellers at fair market value.

Much of the land within the proposed boundary expansion area is undeveloped forest land including some undeveloped or lightly developed lakes. Lands within these areas purchased by the department would generally be maintained in an undeveloped, natural condition, primarily managed for forest products, or the protection or restoration of high quality ecological resources, and for recreation. Without state acquisition, over time much of the land within the expansion area eventually will become subdivided into smaller private ownerships and developed to some degree, particularly the water frontage. Development under state ownership, over the long-term, would likely consist of scattered trails and campgrounds on the most suitable sites, as is currently found on NH-AL lands. An environmental analysis of the impacts of any future Department developments within the expansion area would be done as part of their approval process or future state forest master plan revisions.

State purchase of additional lands would have a neutral to slightly positive impact on the tax revenues of local governments in the boundary expansion area. See the Fiscal Effects — Local Governments section for additional discussion on this topic.

CUMULATIVE EFFECTS, RISK, AND PRECEDENT

Significance of Cumulative Effects

The cumulative effects from the proposed plan for the NH-AL State Forest would generate a long-term positive effect on the quality of the human environment. The recreational facility expansions would fill a demonstrated need for additional or improved recreational opportunities. The addition of the ATV trail on the forest would offer new opportunities for a highly popular and growing sport. The plan's proposed land management would maintain and expand protection of critical ecological habitats and species. Of particular note is the management to restore the pinery and old-growth forest habitats that currently are now rare in the region. Overall, the proposed management plan would have a positive impact on the local tourism economy by expansion of recreational facilities and the maintenance and enhancement of the visual characteristics that are a strong draw of visitors to the region.

The acquisition of additional lands as a result of the proposed boundary expansion would, over time, contribute substantial positive cumulative ecological, recreational, and economic benefits. These benefits would be derived from the land and water frontage that would remain permanently undeveloped and open for public use, the protection of valuable habitats and ecosystems, and the continued production of timber products as a result of long-term sustainable forest management.

Impacts on Energy Consumption

Overall cumulative energy use under the plan would increase, but the impact would not be significant due to the very modest rise in management and public use activity. The price of fuel and other economic influences would have a much greater impact upon the future level of energy consumption within the state.

Significance of Risk

The actions proposed in the revised NH-AL State Forest Master Plan pose a low overall potential for risk to the human environment. Most actions are low risk and would be a continuation or slight modification of management and uses that have been on-going for more than 20 years; therefore, the level of risk in the future is low. No new, high risk actions are proposed, nor are any actions which involve an irretrievable commitment of resources, or actions that could not be reversed in the future.

A proposed action which some may consider a higher risk activity — the use of fire as a forest management tool. Fire is proposed as a management tool for a few areas on the Forest. While the use of fire increases the risk of a prescribed burn turning into a wildfire the risk would be mitigated by 1) using experienced staff to conduct the burn, 2) burning only under lower risk conditions, 3) having appropriate firebreaks pre-established, and 4) having fire-fighting equipment and personnel present on site during the burn.

Significance of Precedent

None of the management actions proposed in the plan revision set a new precedent for management on state forests or other state properties. While management specifically for old-growth forest conditions is somewhat a new concept for state properties, the NH-AL is not the first property to undertake such management in an attempt to increase age-class diversity and to increase under-represented habitats. It is now occurring on the Brule River State Forest and a number of state natural areas outside of the state forests.